

What claimed is :

1. A method of a high stability selectable hydrogenate catalyst producing and using for DMCHD manufacturing.
- (1) A preparing procedure for Ru/Al₂O₃ catalyst including:
- putting 110 grams Al₂O₃ into a triple neck bottle in a suction of vacuum ;
 - heating said bottle a temperature of 110°C for 6 hours ;
 - cooling to atmospheric temperature then stopping vacuum ;
 - to add a solution of 4.6 grams Ru/Cl₃ into said bottle and heating at a temperature of 60°C ;
 - to dry solution of said solution by vacuum suction ; and
 - to heat said bottle in a heater at a temperature of 120°C for 16 hours to preparation process therefore.
- (2) An activity raising procedure for said catalyst including:
- taking the intermediate product of Ru/Al₂O₃ catalyst out from said bottle which is prepared from step (1), and putting said intermediate product into a stainless steel breeder ;
 - to add hydrogen gas into said breeder with a predetermined velocity and heated at a temperature of 450°C for 2 hours ; and
 - cooling to atmospheric temperature and then adding a small quantity of air for passivate the surface of said catalyst so as to get high stability catalyst ready for selectable hydrogenating in a DMCHD manufacturing process therefore.
- (3) A DMCHD manufacturing process which said high stability catalyst is used for a selectable hydrogenating reaction

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including:

- a. putting said $\text{Ru}/\text{Al}_2\text{O}_3$ catalyst onto a fixing bed of a reactor ;
 - b. to dissolve DMT(dimethyl terephthalate) in to ethyl acetate solution ; and
 - c. guiding DMT solution into said reactor with a predetermined velocity for a selectable hydrogenate reaction to provide a high yield capacity capacity of DMCHD manufacturing in high stability for a long term.
2. A method for producing high stability selectable hydrogenate catalyst according to step(1) of claim 1, wherein said Al_2O_3 and RuCl_3 has a fixed ratio of 110:4.6075 by w.t..
 3. A method for producing high stability selectable hydrogenate catalyst according to step(2) of claim 1, wherein said predetermined velocity of hydrogenate gas is 10 to 40 ml/min.
 4. A DHCHD manufacturing process according to step(3) of claim 1, wherein a reaction temperature in said reactor is 100°C to 140°C .
 5. A DMCHD manufacturing process according to step(3) of claim 1, wherein a reaction pressure in said reactor is 700 to 800 psi.
 6. A DMCHD manufacturing process according to step(3) of claim 1, wherein said MDT solution guided into said reactor has a velocity of 12 to 48 LHSV(h^{-1}).
 7. A DMCHD manufacturing process according to step(3) of

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claim 1, wherein said high production to step(3) of claim 1,
wherein said high production ratio is over 90%.

8. A DMCHD manufacturing process according to step(3) of
claim 1, wherein said catalyst has a long stability duration
of 500 to 600 hours activation.

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